

REMARKS

The present response is to reply the Office Action mailed September 25, 2008. The following remarks are believed to be fully responsive to the Office Action to render all claims patentable.

In the reply of Office Action mailed March 26, 2008, Applicant asserted that Courian does not teach the provision of a printing fluid droplet tail release guide arrangement having a predetermined position at an edge of a circumference of a nozzle aperture. Applicant gave an example of Courian's disclosure to explain this assertion. The example is about a non-concentric counter-bore in respect to an ink-transfer bore. However, Applicant did not intend to exclude a concentric case, just did not mention that. The counter-bore concentric or non-concentric to the ink-transfer bore has nothing to do with the features of the present application. What Courian discloses is providing a combination of the counter-bore and the ink-transfer bore. When the counter-bore is formed to be concentric or non-concentric in respect to the ink-transfer bore, or the counter-bore is symmetrical, asymmetrical, or partial, it is able to control the tail break-off expelled ink-jet droplets. Courian does not provide an "additional" guide element or arrangement as the present application does. Moreover, Courian does not provide any guide element or arrangement that locates at the circumferential edge of the nozzle aperture and is specified with a predetermined position at that edge.

In the reply of Office Action mailed March 26, 2008, Applicant asserted that Courian does not mention provision of any element of a specific shape at the circumferential edge of the bore. According to the descriptions of Courian (col. 8, lines 26-39, col. 27, line 24 to col. 29, line 56 and FIG. 5), Courian mentions a "recess" 262, which corresponds to the "counter-bore" described in following descriptions. Courain mentions that the cross-sectional configuration of the recess may be any shape such as triangular. As can be understood, what Courain discusses is the profile of the

whole counter-bore, rather than provision of any element with an essentially triangular or pyramidal cross-section.

Rejection Under 35 U.S.C. §102

Claims 1-4, 7, 8, 1-16, 19, 20 and 22 are rejected under 35 U.S.C. §102(b) as being unpatentable by Courian et al (US Patent No. 6,527,370, hereinafter referred to as "Courian").

To be more specifically pointed out that the printing fluid droplet tail release guide arrangement of the present application is an "additional" guide element or arrangement, "a printing fluid droplet tail release guide arrangement [4] at a predetermined position at an edge of a circumference of said aperture [3]" in the original claim 1 and 13 is amended as "a printing fluid droplet tail release guide arrangement [4] disposed on a predetermined position of an edge of a circumference of said aperture [3]". This amendment is apparently within the support of original specification and drawings.

Regarding claim 1, the Examiner cites col. 13, lines 1-6 to indicate that Courian teaches a printing fluid droplet tail release guide arrangement disposed on a predetermined position of an edge of a circumference of a nozzle aperture. In this description of Courian, it is described that a counter-bore on the top surface of the orifice-plate member controls tail break-off of expelled ink-jet droplets. However, the counter-bore is a part of the nozzle aperture on the exit edge. Because of the shape or profile of the counter-bore, tail break-off of expelled ink-jet droplets is controlled. The shape or profile of the counter-bore is similar to the variance of the nozzle aperture on the exit edge. Therefore, Courian does not disclose an "additional" guide element or arrangement provided as the present application. Moreover, in the present application, the printing fluid droplet tail release guide arrangement is defined with a position that is chose from the circumferential edge of nozzle aperture. However, the position information of

counter-bore is to determine which aperture of the orifice-plate member the counter-bore locates on. It is quite different from provision of a position limitation on the circumferential edge of the nozzle aperture to define the printing fluid droplet tail release guide arrangement. Therefore, Courian does not teach a printing fluid droplet tail release guide arrangement disposed on a predetermined position of an edge of a circumference of the nozzle aperture as claimed in the claim 1 of the subject application. Courian's way to solve the problem of droplet tail is different from that claimed in the claim 1 of the present application.

Regarding claim 2, the Examiner cites col. 45, lines 5-13 to indicate that Courian teaches "a pointed burr like element", the point of which is directed inwards of the aperture. In this description of Courian, it is described that laser-ablated bore holes have burrs on the exit-side edge. In FIG. 13, Courian also shows a bottom wall 276 having burrs as the exit-side edge. However, the laser ablation will cause the bore hole to have burrs all around the exit-side wall. The burrs resulted from the laser ablation can not guide a tail of a printing fluid droplet in a fixed direction as the pointed burr like element claimed in claim 2 does. Therefore, Courian does not disclose any pointed burr like element as a printing fluid droplet tail release guide arrangement disposed on a predetermined position of the edge of the circumference of the aperture as claimed in claim 2 and shown in FIG. 2 of the subject application.

Regarding claims 3 and 4, the Examiner cites col. 8 line 32-37, FIGs. 1, 2 and 17 to indicate that Courain teaches a bar of essentially triangular cross-section, or a pointed structure of essentially pyramidal shape, a base of which rests on an inner surface of the nozzle chamber and a pointed edge of which protrudes towards the center of the aperture, and the bar further extending along said inner surfaces inward of the nozzle chamber. However, according to the descriptions of Courian (col. 8, lines 26-39, col. 27, line 24 to col. 29, line 56 and FIG. 5), Courian mentions a "recess" 262, which corresponds to the "counter-bore" described in following descriptions. Courain mentions that the cross-sectional configuration of the recess may be any shape such as

triangular. As can be understood, what Courain discusses is the profile of the whole counter-bore, rather than provision of any element with an essentially triangular or pyramidal cross-section. FIG. 17 of Courian discloses that a portion of the topside surface of the orifice-plate structure is not removed, so that the counter-bore is only a partial counter-bore is created. Courain does not disclose a bar of essentially triangular cross-section or a pointed structure of essentially pyramidal shape provided at the aperture edge.

Regarding claims 7, 8, 10, as discussed above, the “recess” mentioned in Courian in fact indicates the counter-bore. The cross-section of the counter-bore can be various shapes. That is, the edge of the circumference of the aperture can be formed as any desired shape. Courain does not mentions any recess formed in the inner surface wall of the nozzle chamber.

Regarding claims 11 and 12, since claim 1 is patentable for the reasons above, these two claims are also patentable accordingly.

Claims 13-16, 19, 20 and 22 recite the same limitations as the above claims. Therefore, these claims are patentable for the same reasons stated above.

Rejection Under 35 U.S.C. §103

Claims 5, 6, 17 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Courain in view of Weber et al (US Patent No. 6,527,369, hereinafter referred to as “Weber”).

Regarding claim 5, the Examiner indicates that Weber discloses that the printing fluid droplet tail release guide arrangement comprises a pointed burr like element, the point of which is directed outward of the aperture. As shown in FIG. 10 of Weber, the whole profile of the aperture is egg-shape. That is, Weber varies the profile of the aperture into specific shapes as shown FIG.

10 and FIG. 11, for example. There is NO printing fluid droplet tail release guide arrangement provided at a specific position of the circumferential edge of the aperture. According to the subject application, the basic shape of the aperture is not entirely changed, instead, a printing fluid droplet tail release guide arrangement is locally provided at a specific position of the aperture circumferential edge. Therefore, the feature claimed in claim 5 of the subject application is different from the disclosures of Weber.

Regarding claim 6, in addition to the reasons recited above, Weber does not disclose an essentially saw tooth shaped section arranged at a portion of the edge of the circumference of the aperture as shown in FIG. 6 of the subject application.

Claims 17 and 18 recite the same limitations as claims 5 and 6. Therefore, these claims are patentable for the same reasons stated above.

Claims 9 and 21 is rejected under 35 U.S.C. §103(a) as being unpatentable over Courain in view of Umehara (US Patent No. 6,878,298, hereinafter referred to as “Umehara”).

Regarding claim 9, the Examiner indicates that Umehara teaches a printing fluid droplet tail release guide arrangement comprising a recessed section of essentially hemispherical shape in an inner surface wall of a nozzle chamber. After carefully studying Umehara’s disclosure, Applicant deems that the Examiner might misunderstand Umehara’s technical features.

Please refer to FIG. 3 of Umehara and the relative descriptions, the reference number 41 indicates a nozzle, as can be seen, the inner wall of the nozzle does not have any recessed section. The reference numbers 33 and 37 ink outlet passage and through-passage, respectively. The ink outlet passage is formed by etching the ink supply plate from the upper and lower surfaces so as to have a first passage portion 33a and a second passage portion 33b (FIG. 4), each of which assumes

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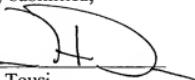
a substantially semispherical shape. The feature and concept of Umebara are very different from the subject application. Umebara does not mention any printing fluid droplet tail release guide arrangement comprising a recessed section of essentially hemispherical shape in an inner surface wall of a nozzle chamber. Accordingly, claim 9 of the subject application should be patentable.

Claim 21 recites the same limitations as claim 9. Therefore, claim 21 is also patentable for the same reasons stated above.

CONCLUSION

In light of the above remarks, Applicant respectfully submits that all pending claims are in condition of allowance and hereby respectfully request reconsideration.

Respectfully submitted,

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